Greetings from Kyoto-U

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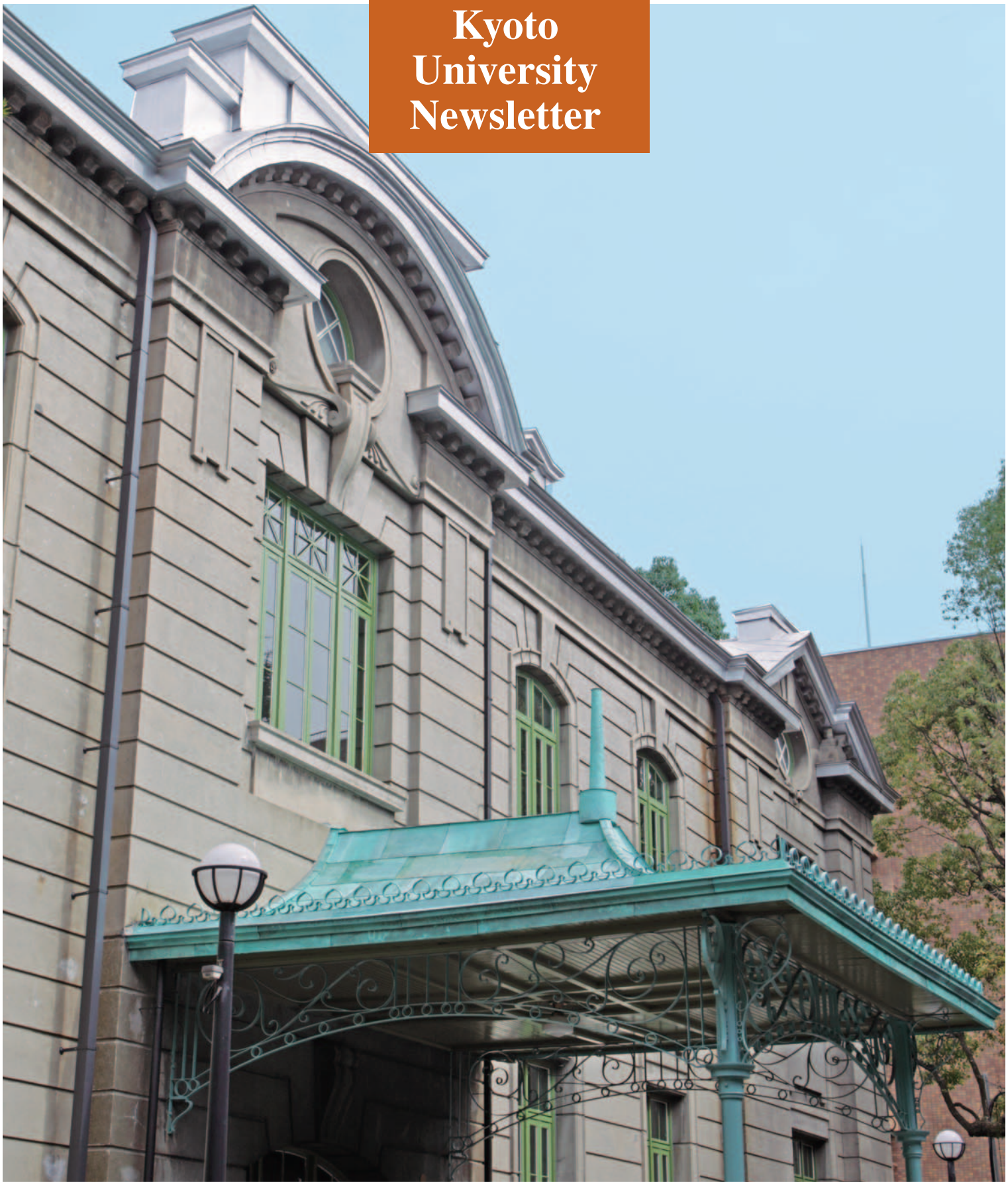
楽友 Raku-Yu

Kyoto University Newsletter



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Editor's Notes

Globalization has affected the scene of cross-cultural relationships. A drive towards "one language, one world" is promoted as a vision of a globalized world. To become cosmopolitan in today's globalized context, we face new challenges: how to expand the boundaries of cultures without losing those cultures in the boundless forms of standardization and assimilation; and how to avoid a retreat from cosmopolitanism into the narrowness of reactionary forms of patriotism. In response to these challenges, it is hoped that this volume of *Raku-Yu* will open new prospects in various ways – especially through its publication of the dialogue between President Hiroshi Matsumoto of Kyoto University and Professor Shinya Yamanaka.

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A Note on Order of Names

As a general rule, names appearing in *Raku-Yu* are written in given name/family name order.

楽
Raku-Yu means to respect, treasure, and enjoy one's friendship.
友

This name was taken from the assembly hall called "*Raku-Yu Kaikan*" that commemorated the 25th anniversary of the founding of Kyoto University.

Front Picture: the *Chinretsukan*

Since its establishment in 1897, Kyoto University had planned to build a museum for storing and managing scientific specimens. After 1907, when the College of Letters - predecessor to the Faculty of Letters - was established, collecting activities for arts, archaeological, geographical and other materials accelerated. From the necessity of storing and managing those arts and materials in order to continue research, the *Chinretsukan* (exhibition hall) was built in 1914 as an attached facility to the College of Letters. Thanks to its precious collections that were remarkable as those owned by the single department, many scientific achievements that received domestic and international attention were realized there. Later, in 1959, the hall was renamed *Hakubutsukan* (museum) and its functions as a museum, including publication of collection catalogues, were strengthened. These achievements were properly passed on to the present-day Kyoto University Museum, completed in 2001, where other collections owned by scientific departments were incorporated.

This gorgeous building is basically Neo-Baroque at large, featuring the pediment at the entrance, the round small window above it and the turret on the ridge of the roof, with Secession designs also adopted in detailing. The building is a national registered tangible cultural property.

Shuzo NISHIMURA Dr. Nishimura was born in Kyoto in 1945 and has held the position of Executive Vice-President since 2006. For the first 2 years, he took on a leading role in the implementation of initiatives for the internationalization of Kyoto University as the supervisor for International Relations. Last year, his effort was materialized as K.U. PROFILE Program (a program that enables students to take courses and obtain degrees in English) and was a driving force behind the Program being selected by the Global 30 Project for Establishing Core Universities for Internationalization promoted by the Ministry of Education, Culture, Sports, Science and Technology. Then from 2008, as an Education and Student Affairs supervisor, Dr. Nishimura commenced the implementation of initiatives for students in Japan to study abroad by enhancing programs such as short term training courses.
"I feel very lucky to hold such a position. Since I transferred from the position of International Relations supervisor to Education and Student Affairs supervisor, I have been able to combine the promotion of the internationalization of a university with the previous program that focused on the education of international students studying in Japan. It's just a pity that now I do not have time to go to the opera which I enjoy so much," Executive Vice-President Nishimura remarks. Dr. Nishimura eagerly performs activities everyday to greatly increase Kyoto University's profile in the world.

Kyoto and Kyoto University for International Students

My guess is that about ninety percent of language used in conversation at the Kyoto University campus is Japanese, although more than half of the people on campus can understand and can speak English. In classes, especially in graduate courses, both professors and students use English, when at least one student cannot understand Japanese. These are the typical examples of the present situation of language used at Kyoto University.

Recently Kyoto University launched a new project called K.U. PROFILE (Kyoto University Project for Future International Leaders). This project aims to provide talented students from around the world with the instruction, research experience and global perspective they need to become world-class leaders in their fields. The program comprises of eleven master's and doctoral courses and one undergraduate course in English. Special emphasis is placed on the way students can obtain degrees without understanding Japanese.

While, through this project, Kyoto University welcomes international students who cannot understand Japanese, we still recommend that they learn about the Japanese language and culture, after coming to Kyoto. We want them to appreciate the unique characteristics of Kyoto University, which is located in a city considered by many to be the "heart of Japan." Kyoto is a city of striking natural beauty, numerous historical sites and deep traditional culture.

Although we are preparing to provide several English courses on both Japanese and Asian history and culture, students are advised to study Japanese, possibly with Chinese and Korean.

Kyoto University's academic style is characterized by three words, "free-thinking, self-reliance and dialogue." We encourage our students to pursue study and research based on their own personal interests and talents, as this often leads to innovation and new discoveries. We encourage international students to follow these approaches. Professors will warmly supervise these kinds of approaches and will engage in active discussions. Many of our alumni, including five Nobel Prize laureates, approve of these approaches.

Finally, let me talk about myself. I was born and grew up in Kyoto. I spent several years in Yokohama (Japan), Cambridge and Boston (United States) and York (England). All of these cities are international cities. While I love all these cities, my most favorite city remains to be Kyoto. I am proud of being a citizen of Kyoto. Everywhere in Kyoto we can see surrounding mountains in three directions. Kamo River is also an important symbol of Kyoto. Furthermore, ample amounts of clean water allows us to produce sake (Japanese rice wine).

Some say that Kyoto is hot and humid in summer and very cold in winter. Although this is true, it is quite comfortable in spring and in autumn. This kind of dramatic change in climate, I believe, makes us aware of the harmony between nature and human kind. I invite all of you to experience Kyoto.

Shuzo NISHIMURA
Executive Vice-President, Kyoto University

Kyoto University Navigating the Era of International Competition

—Promoting International Collaboration and Tie-Ups

With economic activities and information communications becoming increasingly globalized, the academic research community is experiencing a growing trend of international collaboration and tie-ups in research. Meanwhile, the community is also facing ever more intensified international competition for innovative research results and related intellectual properties. This issue of Raku-Yu features a dialogue between President Hiroshi Matsumoto, who takes the initiative in developing Kyoto University into a more internationalized organization, and Professor Shinya Yamanaka, the world's leading researcher into induced pluripotent stem cells (iPS cells)*, the first scientist in the world who succeeded in generating such cells from human skin cells. The two interlocutors discussed diverse issues, including a number of challenges in internationalizing universities and facilitating international interactions among researchers.

International collaboration and tie-ups based upon trust between individuals

Hiroshi Matsumoto: At Kyoto University, a considerable number of international joint research projects have already been implemented by our researchers at an individual level, and we are aiming to promote further internationalization of research activities as a university-wide effort. Your research into iPS cells are being conducted internationally more than ever before, involving a large number of researchers not only from Japan, but also from Europe and the U.S., and more recently from other Asian countries and regions. You are also pursuing your research beyond national borders, and belong to an American institute as well. Furthermore, your research has attracted the interest of European and East Asian researchers. Now that your research activities into iPS cells are at the forefront of worldwide efforts in this field, they are, in a sense, an ideal model of international joint research. Professor Yamanaka, would you share your views and experiences regarding how researchers can collaborate internationally in their research activities?


President Hiroshi MATSUMOTO

Shinya Yamanaka: The Center for iPS Cell Research and Application (CiRA), which I direct, is vigorously promoting international collaboration. We have official tie-ups with the University of Toronto in Ontario Province, Canada, and the Gladstone Institute of Cardiovascular Disease of the University of California, San Francisco, in the U.S. Since progress in this field is extremely rapid, active collaboration with overseas institutes is now a requisite for efficient research. But at the same time, we have to be aware of the fact that such institutes are our rivals. I realize that it may not be easy to strike a delicate balance between collaboration and competition, but nevertheless, what I believe is important for us is to become acquainted with overseas researchers and nurture good relationships on an individual basis. And by doing so, we are building desirable relations with overseas researchers, so that we can work together with them on crucial issues in research processes, while at the same time being in rivalry. This is the current situation we are in.

HM: I often cite my belief: "Academic research and education inevitably embodies human relations around the truth." The prerequisite for

*** iPS cells**

In animals, only fertilized eggs have the capability of developing into any kind of organ or tissue, or pluripotency. Cells produced by artificially giving this capability to somatic cells are called iPS cells or induced pluripotent stem cells. Professor Yamanaka and his team succeeded, for the first time in the world, in generating iPS cells derived from mouse cells and reported it in 2006. They also announced the generation of iPS cells from human skin cells in November 2007.

Since then, iPS cells have been in the spotlight as a ground-breaking technology that can open up new possibilities for regenerative medicine and for treatments for intractable diseases, because rejection in patients can be avoided by using iPS cells that are produced from the patients' own cells. iPS cells also show promise for a range of other applications, including new drug development.

joint research efforts is mutual trust between researchers, whether the counterpart is an individual researcher or a group. But obviously, many people have many minds, so it's sometimes challenging to ensure an optimal coordination among researchers, and therein lies one of the difficulties in proceeding with joint research. I guess you might have also experienced a similar difficulty. How do you cope with this issue at the Gladstone Institute, where you've been working as a visiting scientist since 2007? Are you enjoying working there?

SY: Yes. Actually, I worked at the Gladstone Institute 15 years ago as a postdoctoral fellow. I feel it is like my second home. What I learned there helps me to overcome the difficulties.

HM: My area of expertise is space science. In overseas institutes of this area, in general, although each researcher has a relatively small room, they share a spacious common floor, where they enjoy active discussions over a cup of coffee or tea. And they often hit upon good ideas during such discussions. At the Gladstone Institute, which specializes in life science, I suppose there are similar exchanges of ideas in various locations, including in the experimental labs.

SY: Many life science institutes in Western nations, not just the Gladstone Institute, design their new research buildings to incorporate open laboratories. Professors' labs are not compartmentalized, and all researchers share a spacious common laboratory. CiRA's new building, scheduled to be completed in February 2010, has introduced this open-space concept. As a basis for international exchange, we should also attach importance to interactions with domestic researchers in Japan and even on the same campus. I want to make interactions within CiRA more active and deeper, and in this respect, I find the research style employed in the Gladstone Institute and other Western institutes quite instructive.

HM: I suppose the field of iPS cell research will be more comprehensive, involving a broader range of study. To successfully work in this field, I think it is helpful for researchers to have frank conversations in a shared space, over a cup of coffee maybe, and actively exchange ideas with, or sometimes challenge the ideas of, other researchers who are engaged in different research activities in related fields. It is especially the case for researchers in the iPS cell and other experiment-oriented fields and those in other cutting-edge fields who are making progress at lightning speed. A small tip can lead to a big stride toward the next stage. Through mutual inspiration, research advancement can be expedited. Meanwhile, after you visit the Gladstone and other overseas institutes and interact with researchers there, you will be expected to bring new ideas and knowledge back to Japan and share them with Japanese researchers. What do you think is the ideal way to do this?

Intellectual properties as "weapons" and "barriers" in international joint research

SY: American researchers have a strong awareness of intellectual properties. I hope we can enter into robust collaboration with the Gladstone Institute, the University of Toronto and other institutes, so that we can freely exchange new ideas and knowledge with them. But there is still a long way to go before reaching this goal.

HM: I think you've pointed out a significant issue in considering how academics and other research institutes should promote future international exchange in research activities. For instance, it is natural for you, as a researcher, to seek to share human resources, ideas and intellectual properties between CiRA, based in the new building, and other institutes located overseas. But on the other hand, such free sharing and exchange may not necessarily be allowed due to diverse policies employed by different institutes in different countries and regions, regarding how to deal with their intellectual properties. What do you make of this issue? And how do you envisage its future direction?

SY: About 15 years ago, when I worked as a postdoctoral fellow in the U.S., I don't think American researchers were as highly aware of intellectual property rights as researchers are today. They exchanged data and materials relatively freely, and there wasn't a huge gap in data and material availability between Japan and the U.S. When I returned to the Gladstone Institute as a visiting scientist in 2007, I noticed a considerable change in this awareness there. Actually, it took one to two years to conclude an agreement related to collaborative research with the Gladstone. I recognize that the approach we take regarding intellectual property rights will be a critical issue in proceeding with future international joint projects. While we need a proper arrangement regarding these rights to facilitate a project, taking too much time to establish such an arrangement may obstruct the joint research.

■Profile

Shinya YAMANAKA

- 1987 Graduated from Faculty of Medicine, Kobe University
- 1993 Completed doctoral program, Graduate School of Medicine, Osaka City University
  Postdoctoral Fellow, Gladstone Institute
- 2003 Professor, Research and Education Center for Genetic Information, Nara Institute of Science and Technology
- 2004 Professor, Institute for Frontier Medical Sciences, Kyoto University
- 2007 Senior Investigator, Gladstone Institute
- 2008 Director, Center for iPS Cell Research and Application

HM: The iPS cell research you are involved in is a relevant and significant field in terms of both intellectual property and academic research. There are a number of challenges lying ahead, and we need to tackle them. If we fail to claim and protect our due rights regarding intellectual properties, we may fall behind in the research race, possibly leaving a negative impact on the general public in Japan. But at the same time, attempts to protect these rights may potentially decelerate research advancement, due to competing claims between counterparts. Balancing these conflicting factors will be an important focus we will have to address down the road.

Importance of research assistants

***RAKU-YU*:** Recently, there has been a growing requirement for universities to enhance their contribution to society by actively disseminating and applying their research outcomes in society, and in this regard, there are a lot of discussions about how industry-government-academia collaboration should be promoted to boost such contribution. Do you think such collaboration as seen in Western nations, particularly in the U.S., will be a model for us to follow? Or should we explore an original way that is unique to Japan? Would you share your opinion, Professor Yamanaka?

SY: In my opinion, the American way will be a useful model, given the fact that the U.S. is far ahead of us in such collaboration, and has a huge market. I think we will need to model our way on theirs to some extent. As for collaboration in joint research, 15 years ago, a project was usually negotiated between researchers alone. But recently, an American researcher attends such a negotiation as part of a team of four or five that includes assisting members, such as an interpreter, an attorney, a business representative and others. In contrast, a Japanese researcher has to attend such negotiations still alone. When it comes to practical business, he or she cannot negotiate on a level playing field. Therefore, to support Japanese researchers, I strongly feel we need to secure a large number of staffs who can assist them with an advanced level of expertise, negotiation ability and language proficiency. Attracting capable researchers is no doubt important, but Japanese universities should attach the same importance to securing capable people who support researchers.

HM: I agree. In your case, some assistance has been provided by members of Kyoto University Office of Society-Academia Collaboration for Innovation. In addition, recently, capacity building for such supporting functions has been taking place at CiRA. But there still remains room for improvement. Meanwhile, research practice requires such assistants as experimental technicians and data analysis specialists, and these members are generally categorized as research assistants. In the U.S., there are approximately 0.5 assistants per researcher. But in contrast in Japan, the number of assistants per researcher currently stands at less than a fifth of the U.S. level. There is a huge gap between the two countries. It is absolutely necessary not only for Japanese universities but also for the government to recognize the importance of research assistants. American researchers can concentrate on their research activities at all times, thanks to ample support provided by research assistants. This may partly explain why numerous research papers are published in the U.S.: researchers work in teams that include research assistants. Given this situation, Japanese researchers have competed comparatively well against them. In this respect, a clear recognition must be shared in Japan that the research budget should cover all of the research-related costs, including personnel expenses for research assistants in addition to costs for facilities and equipment.

SY: Exactly. Japan has placed emphasis on science and technology as a key locomotive in developing the country. But just nurturing scientists is not enough; it is also necessary to value research support officials as equal partners of researchers, and to take measures to increase the number of such specialists.

***RAKU-YU*:** This issue needs to be urgently addressed, or it will become difficult for Kyoto University to reinforce its role as a major hub for disseminating cutting-edge scientific knowledge to the world. In spite of the relatively unfavorable research environment in Japan that we've just discussed, Professor Yamanaka succeeded in making the brilliant discovery that astonished the world. This was, of course, down to your excellence. But that aside, what do you think was, and is, helpful in the Japanese research system? Do you find any strength unique to Japan?

SY: Comparatively speaking, the Japanese side has huge advantage in the diligence of its researchers. Japanese students work very hard. But apart from that, the American research system is generally superior to Japan's — superior in research environment, support systems, research budget, and so on. In particular, there is a noticeable gap between the two countries in the social status of researchers. American researchers are highly respected in society. The American public is fully aware of the importance of researchers without whom they cannot benefit from new medicines and treatments. So, some wealthy individuals personally donate generous sums to basic research institutes, equivalent to one billion to two billion yen (approximately 11 million to 22 million USD at the moment).

***RAKU-YU*:** Compared with researchers in Western nations, what aspects do you think are

In 2009, Professor Yamanaka received the Albert Lasker Basic Medical Research Award, the most prestigious medical award in the U.S. Photo: Prof. Yamanaka delivering address at award ceremony

characteristic of Japanese researchers, other than diligence?

SY: Japanese researchers tend to value traditional ways, and don't easily leap at passing fads. But at the same time, they necessarily lag behind their overseas counterparts when new technologies rapidly emerge. For example, a technology called DNA microarray, which enables us to investigate tens of thousands of genes in a moment with semiconductor technologies, was developed in the U.S. about 15 years ago, but it took two to three years before this technology finally spread in Japan. That was very frustrating for me. To avoid repeating such a delay, I want to push iPS cell research forward, ensuring the permeation of the new technology. Looking back over the past two years since I reported the success in generating human iPS cells, I think research in this field has advanced considerably, but I still feel some regret that we didn't disseminate the technology still further. I'm determined to gear up to accelerate our research in the next year or two.

Researchers telling their own visions

SY: I like the word "VW," which I learned from the leader of the Gladstone Institute. This means someone who is capable of both having Visions and Working hard can achieve a success. While most Japanese researchers are hard workers, I am afraid there are not so many who can spell out the visions of their own research activities. They may find themselves being pressed at all times with daily experimental tasks, without having clear goals. It is difficult to ponder your own vision while working a packed schedule.

HM: To help develop a pipeline of talented human resources, we need to persuade the government and the public that losing international competitiveness in science research means a setback for our country. However, it appears that Japanese researchers are often reluctant to communicate the applications and usefulness of their researches. Compared to American counterparts, Japanese researchers seem to be relatively weak at explaining the cause and significance of their research activities, and articulating their own visions.

SY: I totally agree with you. Japanese researchers should make further efforts to communicate information to the public, regarding what research they are doing and how it is useful. I don't think the general public in Japan fully understand the real importance of science research. There is no doubt that researchers should channel most of their time into research as their duty. But still, they must not avoid efforts to encourage the public to understand their research activities. This is also their duty.

HM: Regardless of the field of study, researchers are required to communicate what they are researching and for what purposes. I know you have maintained, from the beginning, a clear goal of regenerative medicine for human beings, and you also recognize your current position on the path to that goal. You have a vision of your research. Other Japanese researchers should have a vision, like you, and communicate it more frequently to the public.

SY: Regarding iPS cell research, we happen to be involved in the last activities just before reaching the final goal. We first succeeded in generating iPS cells from mouse fibriblasts, and now the goal of applying human iPS cells in humans is taking shape; we have entered a totally different phase from the past. We are approaching the threshold of realizing our goal. In the past, I did not think our research would immediately contribute to anything. I kept working with the hope that our research would provide a basis for other researches, so that would gradually accumulate to produce something useful one day in the future. I just wanted to be one of the major players in a game involving numerous people. But now, we happen to have "received the ball" of iPS cell technology. In terms of rugby, we must definitely score a try without fail. So we are now standing on a totally different stage, compared to the situation three to four years ago.

HM: CiRA will be graded up to an institute.(The English name of the institute is the same as the current one: the Center for iPS Cell Research and Application (CiRA)) The construction of the new building of this newly established institute is slated to be completed this coming February, and your research environment will thus be improved. The next focus is how we can build an attractive system that will enable us to gather capable human resources. And after all, this could not be achieved without a leader, like yourself, who is visionary and enthusiastic.

SY: I want to help enhance the fame of Kyoto University worldwide. I and all CiRA members will make all-out efforts to generate new knowledge and disseminate it from the new intitute.

HM: Meanwhile, it is of prime importance for us to be determined and poised to improve our research environment by ourselves. Researchers should be aware of their important responsibilities and roles in sending a clear message to the public, with firm confidence, that their researches are being conducted not for the benefit of researchers themselves but for the sake of the general public..

CiRA's new research building that was completed in February 2010 — external appearance

A New Global COE Program: "Sustainability/Survivability Science for a Resilient Society Adaptable to Extreme Weather Conditions"

On June 15, 2009, "Sustainability/ Survivability Science for a Resilient Society Adaptable to Extreme Weather Conditions" was adopted as one of the Global COE (GCOE) Programs. This newly adopted program (GCOE-ARS for short) focuses on how human beings and human society could adapt to global transformations including climate change that brings about extreme weather and changes in water cycle, population increase, urbanization, desertification, etc. It emphasizes scientific explanation and prediction of weather and hydrological disasters as well as social adaptation to such events.

The Disaster Prevention Research Institute (DPRI) and the Research Institute for Sustainable Humanosphere (RISH) have sought to establish a new "educational unit" around these themes in the fiscal year of 2010 in cooperation with five graduate schools (Graduate Schools of Science, Engineering, Informatics, Agriculture and Global Environmental Studies). In this educational unit, we plan to foster research at the graduate school level by combining engineering and science, and integrating social and natural sciences. Students who enter one of the above graduate schools and want to take the GCOE-ARS program must enroll in this educational unit, attend interdisciplinary classes, and participate in an internship, field research, interdisciplinary seminars, and international schools. Graduate students who have studied two years or more in the GCOE-ARS program and meet the specified requirements will receive certificates of completion. In order to obtain their academic degrees, students will have to fulfill the requirements specified by each graduate school and submit a dissertation.

Thus, the educational unit aims to foster specialists with a generalist's perspecitive by encouraging students and young researchers from various backgrounds, conduct interdisciplinary and unique research, and develop systematic knowledge and expertise. This objective corresponds to Kyoto University's mission of "contributing to a harmonious coexistence within human and ecological community on this planet."

Field research will be conducted at a number of domestic and overseas field research and education sites in Niger, Kenya (or Tanzania), India, Thailand, Indonesia, and Fiji. We set up two research themes in which students and young researchers can participate:

Theme 1: Science-engineering integrated research on extreme weather, water cycles and disaster prediction/ observation

Theme 2: Humanities-sciences integrated research on social adaptation to abnormal weather and chronic meteorological hazards

These themes will provide opportunities for education and ORT (On Research Training).

Located in humid climate and tectonic zone, Asia has out-of-control overpopulation and land development. Africa has arid and semi-arid regions and also tropical rainforests. Environmental conditions in these areas are more severe than in other areas of the world. Consequently, this makes the region especially susceptible to extreme weather. The state of the people's livelihood and economy in these areas have profound implications for survivability of humans on the Earth. At the same time, the changes in the region require adaptation strategies to cope with more difficult conditions expected in the future. We will pursue sustainability/ survivability science and foster world-leading experts by developing practical research in these areas in the world. Many talented individuals from all over the world are welcome to participate in this program, to develop their skills and expertise, and become internationally active professionals.

Program Leader:
Professor Kaoru TAKARA

See latest updates at:
http://ars.gcoe.kyoto-u.ac.jp/

Academic Cooperation and Exchange Memorandum signed with the ASEAN University Network (AUN)

December 18, 2009

Kyoto University signed a general memorandum for academic cooperation and exchange with the ASEAN University Network (AUN), for the purpose of pursuing activities in the field of sustainable energy and environmental studies. The AUN currently has twenty-two member universities from ten countries including Thailand, Vietnam, Indonesia and Malaysia among others. The signing of this memorandum opens for Kyoto University, a wide spectrum of activities relating to cooperative research and the exchange of academic information, researchers and students with the AUN member universities and their countries. This is the first case in which a university in Japan has concluded a memorandum of understanding with a group of universities representing all of the ASEAN countries. Based on the developments of this meeting, Kyoto University hopes to build stronger cooperative relations with the ASEAN countries.

The signing ceremony was carried out at the Government of Thailand's Ministry of Education Office, with Kyoto University represented by Executive Vice-President Nobuyoshi Esaki, and the AUN by Thai Ministry of Education, Commission on Higher Education Deputy Secretary-General Piniti Ratanakul (former executive director of the AUN). The AUN representatives expressed their hopes of establishing a global program in the future, together with ASEAN countries and also with international establishments such as UNESCO – ultimately pushing forward international research and the development of human resources to a new level.

ASEAN University Network (AUN): 22 Universities

1. Universiti Brunei Darussalam, Brunei Darussalam
2. Royal University of Phnom Penh, Cambodia
3. Royal University of Law and Economics, Cambodia
4. Universitas Indonesia, Indonesia
5. Universitas Gadjah Mada, Indonesia
6. Institut Teknologi Bandung, Indonesia
7. National University of Laos, Lao PDR
8. Universiti Sains Malaysia, Malaysia
9. Universiti Malaya, Malaysia
10. Universiti Kebangsaan Malaysia, Malaysia
11. Institute of Economics, Myanmar
12. University of Yangon, Myanmar
13. University of the Philippines, the Philippines
14. De La Salle University, the Philippines
15. Ateneo de Manila University, the Philippines
16. National University of Singapore, Singapore
17. Nanyang Technological University, Singapore
18. Burapha University, Thailand
19. Chulalongkorn University, Thailand
20. Mahidol University, Thailand
21. Vietnam National University, Hanoi, Viet Nam
22. Vietnam National University, Ho Chi Minh City, Viet Nam

Executive Vice-President Nobuyoshi Esaki speaking on behalf of Kyoto University

Foreign Language Publication of "MANGA Kyoto University"

In September 2008, Kyoto University published "MANGA Kyoto University," a booklet which explains the research achievements of our university to junior and senior high school students in an easy-to-follow comic book format.

This publication was achieved in a joint effort by students and staff of Kyoto University and Kyoto Seika University (a university that promotes the arts and established the first Faculty of Manga in Japan). "MANGA Kyoto University" covers topics such as education, research, medicine and student activities at Kyoto University, as well as famous researchers and historical events. The book has become very popular both inside and outside the campus. Originally written in Japanese, it has now been published in foreign languages in order to raise interest and awareness of our university among overseas students.

Along with the Japanese version, the foreign language versions were also published by both universities. In December 2009, we completed English, Chinese and Korean versions. These were distributed to overseas partner institutions, overseas diplomatic missions and overseas campuses of Kyoto University.

"MANGA Kyoto University" can also be viewed on the following Website.

http://www.kyoto-u.ac.jp/en/issue

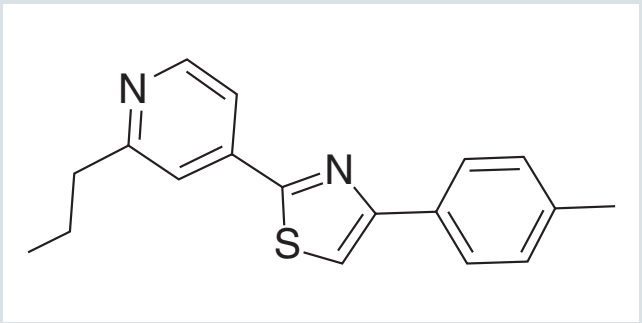
Discovery of a small molecule that inhibits the “playmaker” of fat synthesis

Like fishing, when conducting research, we sometimes feel as if we got a nibble on a hook. The research on this chemical compound is one such case.

About 30,000 chemical compounds are stored in our laboratory freezers. By adding these chemical compounds one by one on a range of cultured cells, we have been able to select chemical compounds that exert unique effects on cells. If we understand which proteins these chemical compounds bind to, and what they really do in cells, we would be able to gain insights into the secrets of life. However, such research is not always successful. Even when the biologically active compounds are discovered, it is not always possible to grasp how they are acting in cells. Fatostatin is one of such compounds.

We discovered Fatostatin in 2003 as a chemical compound that inhibits the proliferation of cancer cells. However, it was not clear how the compound was acting in cells, and it had been left untouched by researchers for a while. Graduate students also did not work on this molecule as a dissertation subject. They presumed that because of its simple chemical structure, Fatostatin (referred to as 125B11 in those days) might bind to multiple proteins and act in a complex way in cells. If such was the case, it would have been difficult to earn a doctor’s degree by studying the chemical compound. Despite this hesitance, two female South Korean and Chinese postdoctoral fellows had enough guts to work on this simple molecule and found success.

They first conducted a DNA microarray-based analysis, where one can examine expression patterns of essentially all the human genes. Usually, when the effects of a biologically active compound or a drug are investigated by this technique, the results are highly complicated. However, in the case of Fatostatin, the microarray results were extremely simple. Many of the altered genes were those regulated by a transcription factor called SREBP (sterol regulatory element-binding protein). Other subsequent experiments also supported the conclusion that Fatostatin acts on the SREBP pathway. At that time, the South Korean postdoctoral fellow returned to South Kores to obtain an independent faculty position, and Japanese postdoctoral fellows joined the Fatostatin project. As a result of the intensive experiments they conducted in cell biology, chemistry, and biochemistry, Fatostatin was discovered to inhibit the activation process of SREBP by binding to a protein called SCAP, a regulatory protein for SREBP.



Fatostatin

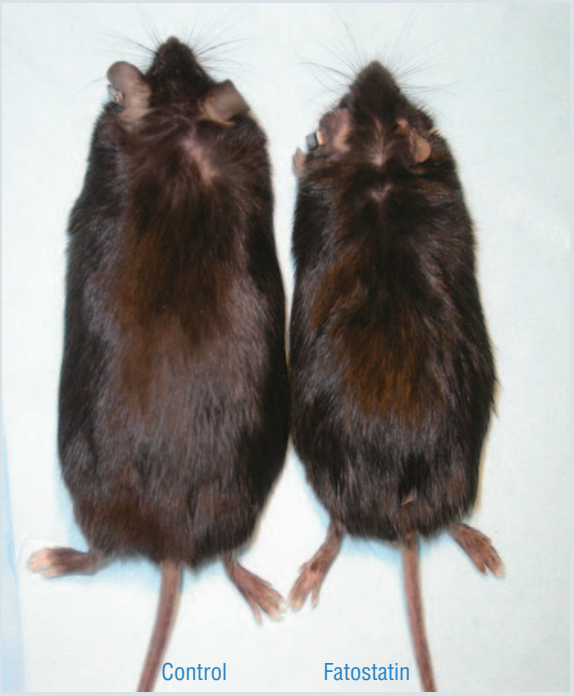
SREBP is a transcription factor that activates many of the fat-synthesizing genes, and it is the "playmaker" of fat synthesis in human cells. If the activation of SREBP is inhibited, the genes required for fat synthesis would not be activated, resulting in the suppression of the synthesis of fat from sugar. In other words, Fatostatin is a chemical compound that terminates fat synthesis at the outset.

We injected Fatostatin into ob/ob mice, obese mouse models that have strong appetite and get very fat. Administration of Fatostatin suppressed obesity resulting from overeating in ob/ob mice, without affecting food intake. Hyperglycemia and fatty liver were also improved by Fatostatin administration. Fatostatin represents the first fully synthetic chemical compound that inhibits SREBP. Fatostatin and its analogs may thus be useful in studying fat synthesis in cells. There is also a possibility that a drug-like analog of Fatostatin could be used in the future as a therapeutic drug for metabolic disorder, such as diabetes and fatty liver.

When studying chemical compounds, there is no telling where the research will lead. In fact, we had no intention of studying fat synthesis at the beginning. When you plunge into an unanticipated area of research, the contents of classes in your student

days, or those of lectures you listened to in youth, may suddenly become relevant. Regarding SREBP, when I was working as a postdoctoral fellow at Harvard University, I had an opportunity to listen to the lecture by Professor Joseph Leonard Goldstein from The University of Texas Southwestern Medical Center, who is the discoverer of SREBP and SCAP. The experience at that time has significantly contributed, after a long time, to the present finding.

So, fellow researchers, you may also get a nibble on the hook which you have baited for quite a long time ago. Watch out not to miss those chances when they emerge.



Courtesy: Motonari Uesugi
Chemistry & Biology (28 August 2009)

Motonari UESUGI

- Born in 1967
- Field of specialization: Chemical Biology
- Completed doctoral program, Graduate School of Pharmaceutical Sciences, Kyoto University
- Ph.D., Kyoto University
- Professor, Research Institute for Integrated Cell-Material Sciences, Kyoto University
- URL http://www.scl.kyoto-u.ac.jp/~uesugi/indexieng.htm

The mottos "Don't fear failure" and "Do what others do not do" are traditions at Kyoto University.

We have the best environment for producing groundbreaking research.

Professor Uesugi was the type of child who wondered why water boiled as he stood beside his mother while she was cooking. As a junior and senior high school student he was so good at physics his teacher told his classmates to ask him questions if they did not understand something. Nevertheless, he did not like chemistry and English. In comparison to the logical reasoning of physics, he felt that chemistry and English were subjects that just required rote memorization. However, he soon became interested in chemistry after he realized that he could further the research of past scholars. "It's ironic that for 10 years I actually ended up teaching chemistry to students in English in the United States," Professor Uesugi laughs.

From the time he was a junior high school student, his ambition was to become a researcher who could make a contribution to society. After he got Ph.D. from Kyoto University in 1995, he went to Harvard University as a post-doctoral fellow with the goal of making both direct and indirect contribution to the human society. When asked what he means by "indirect," he replied "Indirect contribution is like a 'Samuel Sosa's homerun'. Sosa's homeruns themselves did not make direct contributions to society. However, his homeruns may provide people with excitement, hope, and confidence to do something difficult. I wanted to do something like that by disclosing the secrets of life and by making new concepts and ideas."

After his postdoctoral training at Harvard University, Professor Uesugi was appointed assistant professor at Baylor College of Medicine, Houston, Texas. After achieving a tenure as an associate professor there, he decided to return to Kyoto University to take up the post of full professor at the Institute of Chemical Research. The long-standing economic slump in Japan and fewer direct benefits of basic research to daily life in recent days may have discouraged Japanese students from pursuing science as their career. However, Professor Uesugi has a different view. "Despite such discouragement, Kyoto University still have young talents with deep interests in science. They may be more interested in science than I was, and their future is bright." Professor Uesugi has earned his students great trust due to the attention he gives to the young and upcoming students and his teaching experience in the United States and other countries.

Diwakar ACHARYA
- Born in 1969
- Field of specialization : Sanskrit Studies, History of Indian religions and philosophies
- Completed master's course at Sampurnananda University
- Ph.D., University of Hamburg
- Visiting Lecturer, Department of Indological Studies, Faculty of Letters of Kyoto University

In search of Ancient Texts and their Proper Interpretations

Although in the past I wanted to escape the strict instructions of my father, I am now extremely grateful to have researched and been taught about the deep and wide world of Sanskrit.

From April 2006, Dr. Acharya has taught grammar in basic Sanskrit class and conducted individual seminars on the history and philosophy of Sanskrit, religious rituals and festivals as a foreign instructor at the Faculty of Letters of Kyoto University. Even though Sanskrit is not used in conversation, Vedic Sanskrit and other ancient languages can be read with the knowledge of Sanskrit since the vocabulary and grammar are fixed. It covers areas such as literature, philosophy, religion and science. Dr. Acharya's research is also wide ranging. His areas of specialty include codicology and epigraphy.

With the linguistic and educational reforms implemented in Nepal since the 1950's, Sanskrit has been used on many occasions to create new words in order to standardize the national language. In fact, 70% of the Nepalese vocabulary is currently directly borrowed or derived from Sanskrit, although highly Sanskritised vocabulary is not used in daily conversation. Consequently, education of Sanskrit is limited to a few traditional Brahmin families.

In addition to his regular schooling, Dr. Acharya also received a very strict education in Sanskrit from the age of 7. This was provided by his father who was a teacher and pundit that adhered to the strict principles of Sanskrit teachings. He used to rebel against such methods after entering the university. He lived in a hostel, went to movie theaters, ate meat and lived a bohemian lifestyle. However, after one year, he met a mentor who introduced him to the interesting aspects of Sanskrit as an academic subject. With this, he concentrated on his research and is now deeply grateful to what his father did to him.

After arriving in Kyoto, Dr. Acharya was impressed with the similarity of the mountains surrounding the city and the many Buddhist temples with those of his hometown, Katmandu. He is very comfortable researching his areas of interest without restrictions at Kyoto University and wishes to continue his studies well into the future.

All kinds of knowledge systems Indian people developed till the advent of modern education in India are expressed in Sanskrit and related languages. These knowledge systems now are hardly developing further, but literary activities in classical languages of India, mainly Sanskrit, are still going on. Classical Indological Studies cover all such traditional knowledge systems and all types of ancient or modern literary activities in the classical languages of India. On the other hand, there are thousands of manuscripts of unpublished Indic texts kept in different archives. This makes the field very broad, and the direction of a department of Indological Studies depends much on the animated interests of its faculties and researchers.

In order to develop a feeling for Sanskrit, I read literary works, religious and philosophical texts, and historical documents. Being a written language, there is no alternative to reading as many texts of different genres as possible. It is mostly advantageous: knowledge of one genre helps me to understand another.

Since my college days in late 80s, I am constantly involved in handling manuscripts and identifying unpublished works. Some of them I have already published, and on some others I am currently working. They are mainly literary and religious texts. I am also interested in the early history of Indian religious traditions, and here too, reading across these traditions is helpful.

As Buddhist texts narrate, the historical Buddha used to tell his disciples that they should not accept his teaching just because of his authority; they should rather experiment with everything they are told and have a first-hand knowledge. I feel that this applies to any discourse, any interpretation. I try to follow this advice whenever I deal with an important text. I feel that combining trained skills and innovative imagination enables a scholar to contribute in a better way to the field of his research.

Kyoto is strong in the studies of Indian, particularly Buddhist, philosophies, and since my arrival here I have constantly benefited from this situation, inside and outside Kyoto University. Kyoto is unique; one example is the Philosopher's Path, named after a famous Japanese philosopher, Kitaro Nishida. After coming to Kyoto, I have been occasionally reading the works of him and other Japanese philosophers of the Kyoto School (but only in translation), and also some of the 20th century western philosophers like Popper and Derrida. Because of my traditional schooling in Vedic and other subsequent religious traditions, I find human consciousness forming the true core of religion. So, I enjoy reading these modern philosophers on religion, truth, and human nature. In a sense I am reading Nishida's consciousness from Hindu perspective and Popper's theory of falsification from Upaniṣadic point of view. In brief, I am trying to look at the core of religion from all angles and various perspectives.

13th century

14th century

17th century

My dream is to contribute to the efforts to create an egalitarian world order. Multitudes of actions at various levels are required in order to realize this dream.

Bhaskar GAUTAM
- Born in 1976
- Currently graduate student at the Graduate School of Asian and African Area Studies (ASAFAS), Kyoto University

From October 2008, Mr. Gautam has been a graduate student at the Graduate School of Asian and African Studies (ASAFAS). Since 1990, Mr Gautam's home country, Nepal, has experienced a series of political and social changes due to armed struggle, coup d'etat and on-going movements for democratic transformation. As researcher and activist Mr. Gautam contributed to the democratization of Nepali society. He is currently pursuing research on political movements and change in Nepal. Recently he also participated in the field schools in Nepal and Cameroon that ASAFAS organized with an aim to provide better exposure for its students.

Mr. Gautam, please tell us about your life before you became a graduate student.

I moved to Kathmandu after I finished junior high school. While in university I was discontented with the quality of education so I gave up my studies and start working. In 1998, I met Pratyoush Onta, who led me to the field of research at the Martin Chautari. First, I assisted him in his work on the chronicle of history writing in Nepal. Later, I concentrated on my own work on media and on contemporary socio-political currents in Nepal. Beside research, I was co-organizer of public discussion series at Martin Chautari on a wide range of issues. One could say those were ventures to deepen democracy and promote a culture of public debates in Nepal.

Was the democracy movement very active at that time?

In 1996, insurgency broke out as the Maoist fraction of the Communist Party of Nepal began armed struggle calling for establishment of communist order and a People's Republic. Parliamentary parties ridiculed this undertaking in the beginning and tired to resolve it with force. The monarchy watched this move cunningly, at times impeaching political power that ultimately resulted in the coup d'etat in 2005. What Nepal experienced until then was a tri-party struggle. By then Nepal had already experienced a series of crises from state of emergency to massive killings to constant mockery of parliamentary culture from actors within and outside. This was also the time where various social movements made their presence felt. But dissents from social groups or calls ensure human rights or freedom of press or rule of law were limited in their scope and reach, unable to engage people at large. Political parties were extremely unpopular as conducts for democracy movements.

Realizing this, in 2005, we initiated a group called Citizen's Movement for Democracy and Peace (CMDP) calling for an end to left and right extremism but envisioning radical transformation. CMDP intervention was crucial in bringing people, parliamentary parties, and the Maoist together that ultimately led to the People's Power in 2006 and the subsequent historic changes thereafter.

When did you meet Associate Professor Tatsuro Fujikura?

I met him in 1999. But it was the Kamaiya (bonded labor) movement in 2000 that brought us close to each other for the first time. He was researching bonded labor movements for emancipation and I was among the organizers of this movement in Kathmandu. Kamaiya is a form of labor where a poor man and/or his family are forced to work for the same landlord in order to pay their debts. In 2003, I asked him to contribute a chapter for a volume that I co-edited, titled as "Debates on Poverty in Nepal." Since then we are in constant touch.

Why did you later decide to come to Japan?

In 2004, I went back to university to give way to my quest for theoretical and critical knowledge, knowing all of which are not available in Nepal. I shared this plan with Professor Fujikura in 2005 and he suggested I consider doing my graduate studies in Kyoto University. Then I was deeply occupied with the political movements and everything around and had little interest to move anywhere. After 2006 I realized that, despite Nepal experienced series of changes, some historic, we achieved very little given the kind of political opportunity that was available for radical transformation. It was after this, that I said to myself: a few years of study abroad is a good idea. Japan, then became a first choice because of Professor Fujikura. He is among the very few best scholars on Nepal. As he shares better understanding on Nepal I thought it would be a wonderful opportunity to work with him. Also the open educational environment available at Kyoto University was an attraction. Of course, receiving a scholarship was another major reason.

How do you find research environment in Kyoto University?

All students at the ASAFAS are provided with an environment to research and study freely. No doubt the atmosphere is very impressive. However, as my Japanese language ability is very bad, I cannot get the best out of the university and sometime feel limited.

Kyoto University is trying to create an environment where students without Japanese language abilities can make research and attend classes.

This is good news, and there is an urgent need for this. Kyoto University, perhaps, is in the best position to make it happen. I wish for its success and believe that it will be major undertaking to attract more overseas students and make the learning environment more diverse and dynamic.

What are your future goals or dreams?

This is difficult question to answer. But as I move on, I would like to learn more about political and social theories so that this will help my ventures in future. However, freedom and quality of life are fundamental desires of people. I wish to devote my life to the pursuit of humanity in every possible sense. My dream is to contribute constructively to the creation of an egalitarian world order. This grandiose dream is possible only when multitudes of actions take place at local and regional level, but thinking globally.

The 1st Vietnam-Japan University Presidents' Conference

September 17–18, 2009

The 1st Vietnam-Japan University Presidents' Conference was held by the Vietnamese Ministry of Education and Training from September 17 to 18, 2009 at the Horizon Hotel in Hanoi City, Vietnam. The event was attended by a delegation from Kyoto University including Executive Vice-President Shuzo Nishimura, Vice-President Junichi Mori, director of Kyoto University's Organization for the Promotion of International Relations, and Professor Koichiro Oshima, dean of the Graduate School of Engineering.

Prior to the conference, on the evening of September 16, a reception, hosted by Mr. Mitsuo Sakaba, the Japanese Ambassador to Vietnam, was held for the Japanese participants. The reception provided an excellent opportunity for friendly discussions about academic exchange between Vietnam and Japan.

The conference itself was attended by over 100 participants from Japan, including delegates from fifty-three universities, as well as delegates from the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the Japan Association of National Universities. An equivalent number of Vietnamese delegates also attended the event, including H. E. Dr. Nguyen Thien Nhan, deputy prime minister and minister of education and training of Vietnam and representatives from seventy-one Vietnamese universities and colleges.

The conference's keynote speech was followed by lively discussions on the topic of higher education. At the closing of the successful event, Deputy Prime Minister Nguyen Thien Nhan suggested that a second conference be held in either Japan or Vietnam in two years time. It was decided that Kyoto University would coordinate the Japanese participants for the next conference.

The conference provided a significant opportunity for the Kyoto University delegates to meet and improve relations with the Vietnamese Ministry of Education and Training and many Vietnamese universities, including Hanoi University of Technology, which hosted the event. It was also an ideal opportunity to publicize Kyoto University's new range of programs for international students: Kyoto University Programs for Future International Leaders (K.U. PROFILE).

President Hiroshi Matsumoto attends the 6th China-Japan University Presidents' Forum

October 15–16, 2009

Kyoto University president, Dr. Hiroshi Matsumoto and Executive Vice-President Shuzo Nishimura attended the 6th China-Japan University Presidents' Forum at Nankai University in Tianjin on October 15 to 16, 2009. The Kyoto University delegation also included Professor Liyou Han of the International Center, Ms. Tomoka Satomi, vice-director of the Office of the President, and Mr. Masao Tsukamoto, Director of the International Affairs Department.

The China-Japan University Presidents' Forum is held biennially by the Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT) and the Ministry of Education of the People's Republic of China. On this occasion the forum was attended by approximately 100 delegates including university presidents and the vice-minister of MEXT.

The forum was co-chaired by the presidents of the University of Tokyo and Peking University, and consisted of five sessions, during which the delegates passionately discussed ideas, plans and concrete programs relating to higher education in China and Japan, as well as the role and responsibility of universities.

After the opening session, the second session, "National Strategies and University Development," focused mainly on the Chinese Ministry of Education's Project 211 and Project 985 initiatives, and MEXT's COE and Global COE Programs.

The third session "Theory and Practice in the Internationalization of

Creative Human Resources Training," was co-chaired by President Matsumoto and President Yang Yuliang of Fudan University, and explored the possibilities for joint endeavors by China and Japan to cultivate human resources. The fourth session was a discussion session on the same topic, and included a discussion about Kyoto University's approach to education and research.

The fifth session was a steering conference for the forum, during which it was decided that next year's forum would be co-hosted by Kyoto University and Ritsumeikan University. President Matsumoto expressed his willingness to host the forum, as did Chancellor Kiyofumi Kawaguchi of Ritsumeikan University. President Matsumoto emphasized the significance of holding the event in Kyoto, a city with long-standing historical, cultural and academic connections with China.

The forum provided an excellent opportunity for President Matsumoto and Executive Vice-President Nishimura to engage in active discussions with the delegates from the participating Chinese universities, who showed great interest in developing their relations with Kyoto University.

Zhejiang University holds "Kyoto University Days"

October 30–31, 2009

Zhejiang University held two "Kyoto University Days" on October 30 to 31, 2009. The purpose of the two-day event was to introduce Kyoto University to the students of Zhejiang University, facilitate academic exchange and provide information about study abroad opportunities. This is the first time that such an event has been held. The following six Kyoto University graduate schools participated in the event: the Graduate School of Management, the Graduate School of Medicine, the Graduate School of Engineering, the Graduate School of Agriculture, the Graduate School of Informatics and the Graduate School of Global Environmental Studies.

The first day's proceedings commenced with a welcome speech by the president of Zhejiang University, Professor Yang Wei. President Wei's speech was followed by presentations by Executive Vice-President Shuzo Nishimura, Vice-President Junichi Mori and Professor Liyou Han of Kyoto University. Executive Vice-President Nishimura greeted the attendees by reciting a Chinese poem about the city of Hangzhou, in which Zhejiang University is located. The recital received a warm round of applause.

In the evening, the six participating graduate schools conducted individual sessions introducing their research activities and holding mock classes. After the graduate school sessions, a discussion session was held by Vice-President Chu Jian and Vice-President Zheng Qiang of Zhejiang University. The participants actively discussed the promotion of student exchange between Kyoto University and Zhejiang University, as well as the Japanese government's Global 30 Project for Establishing Core Universities for Internationalization (G30 Project).

Continuing on from the introductory presentations of the previous day, the second day of the event began with a presentation by Kyoto University International Center program officer, Professor Liyou Han. Professor Han gave an overall description of Kyoto University, as well as explanations of the university's various departments and information about enrollment. The students of Zhejiang University responded enthusiastically throughout the two days of the event, with many students consulting the Kyoto University representatives for details about government sponsorship and scholarship applications.

On the evening of the second day, an inaugural meeting of the Kyoto University Alumni Association of China was held. Approximately 100 people participated in the relaxed and friendly gathering. The participants exchanged their latest news and shared their memories of Kyoto University, as well as their thoughts about the Kyoto University of today, expressing their desire to further contribute to the university's international exchange undertakings.

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伏見稲荷大社

Fushimi Inari Shrine — A religious space filled with the prayers of the people

Fushimi Inari Shrine is located between Kyoto University's Yoshida campus and Uji campus, approximately 2.5 km south east of JR Kyoto station. Constructed in the Nara Era (710-794), it boasts a long history spanning over 1300 years. Fushimi Inari Shrine is the head shrine of the approximately 30,000 shrines in Japan and about 2,800,000 people visit the shrine during the first 3 days of every New Year period.

The word "*Inari*" is derived from the expression "bumper harvest". As a result, Inari shrines were originally places where people prayed for a good harvest. However, now these shrines have become well known for providing good profits for companies and family safety.

The main characteristic of Fushimi Inari Shrine is the large amount of fox statues that can be found throughout the shrine grounds. Regular temples and shrines have *Komainu* statues (animals which cannot be determined whether they are lions or dogs) placed on the left and right hand side of the gates and main shrines. However, in the case of Inari shrines, the statues are clearly those of foxes. They are revered as servants of the Inari god.

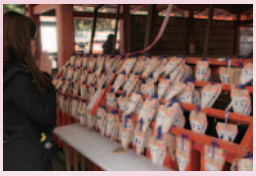
The mountains behind the main shrine also form part of the shrine's spiritual area. The path that surrounds these mountains is lined with *Torii* (Shinto gates) which have been donated by people and companies praying for prosperity. This is known as the "*Senbon Torii*" (there are actually thousands of these Shinto gates) and it is a characteristic that cannot be found at any other Inari shrine. In the mountains themselves, there are more than 10 thousand *Otsuka* (stone plates engraved another name of Inari god). Many people kneel in front of these stones to pray in an atmosphere filled with a religious spirituality that has continued since antiquity.

Senbon Torii: Names of donating people and companies are written on each *Torii*.

The main shrine was reconstructed in 1499 after it was lost in a fire caused during a civil war. This huge elegant shrine has been designated as an important national cultural treasure.

This tower gate was created in 1589 by the then powerful Hideyoshi Toyotomi in order to pray for his mother to recover from illness. This is the largest shrine tower gate in Japan.

Ema (wooden planks which are used to write down their wishes) may also come in the shape of a fox.



Fox statue: An ear of rice in the mouth of a fox is a sign of a good harvest. There are some fox with scrolls or keys in their mouth.